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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,416	09/16/2003	Bruce B. Randolph		2714

<sup>7590</sup>  
RICHMOND, HITCHCOCK, FISH & DOLLAR  
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Bartlesville, OK 74005

07/18/2007

EXAMINER
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MCDONOUGH, JAMES E

ART UNIT	PAPER NUMBER
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1755

MAIL DATE	DELIVERY MODE
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07/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/663,416

Applicant(s)

RANDOLPH ET AL.

Examiner

James E. McDonough

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicants arguments on page 3, section 2, 112 rejection over claims 2 and 3, and page 6, first paragraph, 102/103 rejection with respect to claims 8 and 9, filed 2/26/2007, are considered persuasive, therefore, the 112 rejections have been removed, and the 102/103 has been removed with respect to claims 8 and 9 the rest of the claim remain rejected under the 102/103, however, remain.

### **Objection**

#### ***Specification***

The disclosure is objected to because of the following informalities: On page 4, last two sentences of first paragraph, describe sulfuric acid and trifluoromethanesulfonic acid as bases, and on page 5 last sentence of next to last paragraph  $TiF_4$  the l should not be subscripted.

Appropriate correction is required.

### **Original Rejections**

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

#### ***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Aumuller, et al. (US 5,714,611).

Aumuller, et al. disclose an acid catalyst composition comprised of methanesulfonic acid, trifluoromethanesulfonic acid, benzenesulfonic acid, p-toluene sulfonic acid, mineral acids (Bronsted" Acid), or carboxylic acids, heavy metal catalysts (Lewis acid) and organic catalysts such as phosphonium compounds or quaternized hetero ammonium compounds with anhydrous halides (used to make ionic liquid), used in an amount from 0.01 to 25 mole percent and are used to stabilize alkyl acrylate copolymers, alkyl methacrylate copolymers and other polymers (col. 6, l. 1 - col. 7, l. 54; col. 8, l. 56- col. 9, l. 17).

Claims 1-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Aumuller (US 5914360).

Aumuller discloses an acid catalyst composition comprised of methanesulfonic acid, trifluoromethanesulfonic acid, benzenesulfonic acid, p-toluene sulfonic acid, mineral acids (Bronsted Acid), or carboxylic acids, heavy metal catalysts (Lewis acid) and organic catalysts such as phosphonium compounds or quaternized hetero ammonium compounds with anhydrous halides (used to make ionic liquid), used in an amount from 0.01 to 25 mole percent and are used to stabilize alkyl acrylate copolymers, alkyl methacrylate copolymers and other polymers (col. 6, l. 1 - col. 7, l. 54; col. 8, l. 56 - col. 9, l. 17). The specification discloses that increasing the amount of catalyst above 25 mole percent has no adverse effect on the reaction but offers no further advantages (col. 6, l. 20-26). The prior art appears to anticipate the invention as claimed on the basis of inherent property characteristics but alternatively would be considered obvious because molar ratios above 25% were disclosed and although specific mole percentages were not given, it would have been obvious to one of ordinary skill in the art to use incremental molar percentage increases to 100% in order to determine whether any substantial increase in catalytic activity or specificity were seen.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hlatky (WO 01181436 A1).

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Hlatky discloses a process (p. 4, l. 1-3) for the polymerization of one or more olefins (p. 7, l. 20-29) in the presence of a single site catalyst (Ziegler-Natta), optional activator (methaluminoxane, boranes) and an ionic liquid (Lewis acid and halide - p. 6, l. 3 - p. 7, l. 16). Ethylene polymerization examples are given (p. 10, l. 1-26).

### **New Rejection**

Claims 1 and 7-9 rejected under 35 U.S.C. 102(b) as being anticipated by Stevens et al.

Stevens et al. teaches a composition that comprises 45-95 g H<sub>2</sub>SO<sub>4</sub> per 100 cc, and since the density of concentrated sulfuric acid solution is about 1.8 g/cc, 95 G per 100 cc is over 50 % by weight, the composition also contains a polymer (page 5, column 1, lines 1-10).

### **Response to Arguments**

Applicants argue the 102 rejection over Aumuller (US 5,714,611).

Applicants argue 1.) That Aumuller does not teach a composition of an acid and a polymer and 2.) That sulfonic acid is the catalyst, and since catalyst are not consumed in a reaction, they therefore, would not be present in the composition. This is found not persuasive because it is well known in the chemical arts that it is difficult to impossible to completely remove all of the homogenous catalyst from the reaction product, and if this reaction product is added to a polymer, then there would be a composition comprising and acid and a polymer, reading directly on the instant claims. Aumuller

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clearly teaches an acid component that reads on the instant claims (column 6, lines 9-54) and polymers that read on the instant claims (column 8, line 56 to column 9, line 17), therefore this rejection is proper and maintained.

Applicants argue the 102/103 rejection over Aumuller (US 5,914,360).

The response to these arguments is the same as that offered above for Aumuller (US 5,714,611). Applicants argument against this rejection over claims 8 and 9 is found persuasive and therefore, withdrawn.

Applicants argue the 102 rejection over Hlatky (WO 01/81436).

Applicants argue that in the reference polymerization, the polyethylene reaction product collects on the surface of the ionic liquid and is easily isolated, and therefore, applicants consider that these components are separate entities and not a single composition. This is found not persuasive because:

1.) Applicants claims do not have any limitations as to how intimate the components need to be mixed.

2.) Some of the polymer would inherently be on the catalyst as it is being formed, so even if most of the polymer product separates out as a separate phase, some of it is still intimately associated with the catalyst component, therefore, anticipating the instant claims.


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James E. McDonough whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEM 7/10/2007

  
J.A. LORENZO  
SUPERVISORY PATENT EXAMINER